WHAT IS CLAIMED IS

1. A microscopic imaging system comprising:

a laser device giving off a laser beam having a predetermined wavelength;

a microscope receiving the laser beam and projecting the laser beam to an observed sample to obtain an observation beam;

splitting means for splitting the observation beam into a second harmonic wave component and a third harmonic wave component; and

detection means for detecting the second and third harmonic wave components and, in response thereto, generating first and second electrical signals corresponding to the second and third harmonic wave component.

2. The microscopic imaging system as claimed in Claim **1** further comprising a computer system that receives and processes the first and second electrical signals to form an image of the sample.

3. The microscopic imaging system as claimed in Claim **1**, wherein the predetermined wavelength is within a range of 1200-1350nm.

4. The microscopic imaging system as claimed in Claim **3**, wherein the predetermined wavelength is 1230nm.

5. The microscopic imaging system as claimed in Claim **1**, wherein the predetermined wavelength is within a range of 1600-2000nm.

6. The microscopic imaging system as claimed in Claim **1**, wherein the laser device comprises a Cr: Forsterite laser.

7. The microscopic imaging system as claimed in Claim **1** further comprising scanning means for guiding the laser beam to perform a two-dimensional scanning operation on the sample.

8. The microscopic imaging system as claimed in Claim **1** further comprising scanning means for moving the sample to form a two-dimensional/three-dimensional scanning operation.

9. The microscopic imaging system as claimed in Claim **1** further comprising a focusing lens for directing the observation beam to the splitting means.

10. The microscopic imaging system as claimed in Claim **1**, wherein the laser device comprises a short pulse laser.

11. The microscopic imaging system as claimed in Claim **1**, wherein the wavelength of the laser beam causes no autofluorescence on the sample.

12. A harmonic generation microscopy comprising the following steps:
    (1) providing a laser device that gives off a laser beam having a predetermined wavelength;
    (2) providing a microscope that receives and projects the laser beam onto an observed sample to obtain an observation beam comprised of a second harmonic wave component and a third harmonic wave component;
    (3) splitting the second harmonic wave component and the third harmonic wave component from each other; and
    (4) converting the second harmonic wave component and the third harmonic wave component into first and second electrical signals respectively; and
    (5) processing the first and second electrical signals to form an image of the sample.

13. The harmonic generation microscopy as claimed in Claim **12**, wherein the first and second electrical signals are processed by a computer system to form the image of the sample.

14. The harmonic generation microscopy as claimed in Claim **12**, wherein the predetermined wavelength is within a range of 1200-1350nm.

15. The harmonic generation microscopy as claimed in Claim **14**, wherein the predetermined wavelength is 1230nm.

16. The harmonic generation microscopy as claimed in Claim **12**, wherein the predetermined wavelength is within a range of 1600-2000nm.

17. The harmonic generation microscopy as claimed in Claim **12**, wherein the laser device comprises a Cr: Forsterite laser.

18. The harmonic generation microscopy as claimed in Claim **12** further comprising a step of guiding the laser beam to perform a two-dimensional scanning operation on the sample.

19. The harmonic generation microscopy as claimed in Claim **12** further comprising a step of moving the sample to form a two-dimensional/three-dimensional scanning operation on the sample.

20. The harmonic generation microscopy as claimed in Claim **12**, wherein the laser device comprises a short pulse laser.

21. The harmonic generation microscopy as claimed in Claim **12**, wherein the wavelength of the laser beam causes no autofluorescence on the sample: